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IN TWO SECTIONS

Section I

N.A.C.A. LIBRARY

IN THIS ISSUE

Basic Standard Costs as Applied to a Hosiery Mill, by Lloyd F. Mogel.... 961

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EDITORIAL DEPARTMENT NOTE

Much has been published in N. A. C. A. Bulletins and Year Books on the subject of standard costs. Many divergent viewpoints have been presented and many varieties and types of standard cost systems have been brought to the attention of our members. Naturally there has been some confusion, some feeling that standard costs had a rather different meaning to each accountant who came to write on this subject. Yet the remarkable increase in the use of standard costs in the last ten years and the increasing complexity of the articles published seem to indicate that the confusion is more apparent than real and that from the divergent views there is evolving somewhat of a general agreement on certain theories of standard costs.

In general, it appears that all standard cost systems can be listed as developing from one or the other of two concepts of standard costs. Under the first concept standard costs are thought of as "real" costs, they are carried through the accounts in place of actual costs, and differences between standard and actual are accounted for in variance accounts. To be of greatest value, standards of this type require frequent revision, otherwise inventories and cost of sales will not reflect current conditions.

Under the second concept standard costs are thought of as established measured or fixed yardsticks with which actual costs may be compared and operating ratios determined. Standard costs of this type do not displace actual costs, but make possible the determination of the actual figures with a saving of clerical work. Since this type of standard costs does not displace the actual costs for inventory and cost purposes, frequent revisions of the standards are not necessary.

It is the second type of standard costs to which the term "basic standard costs" has been applied, and with which the present Bulletin deals. In this issue we are presenting a case study showing how basic standards costs have been applied to a hosiery mill. The author of this article is Lloyd F. Mogel, a graduate of the Wharton School of Finance of the University of Pennsylvania. After his graduation Mr. Mogel spent one year as a stenographer before entering the scheduling and planning department of the International Money Machine Co. After four years in this connection and five years of cost and statistical experience in textile with the Narrow Fabric Co., he took over his present duties as Cost Accountant for the Princess Royal Hosiery Mills. Mr. Mogel is Vice President of our Reading Chapter.

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NATIONAL ASSOCIATION OF
COST ACCOUNTANTS

MAY 1, 1935

BASIC STANDARD COSTS AS APPLIED TO A HOSIERY MILL

By Lloyd F. Mogel, Cost Accountant,
Princess Royal Hosiery Mills, Reading, Pa.

MUCH discussion has occurred as to the relative merits of various plans or systems of standard cost. Some have thought of standards as more or less fixed engineering specifications stated in terms of monetary values with which actual cost could be compared. Others have viewed standards as more representative of real costs than so-called actuals and have substituted the standard figures for the actual in the cost accounts, carrying the difference in variance accounts.

In the present case study of the application of standard costs to a hosiery mill, we shall not be concerned with the merits and demerits of these two plans. We shall leave this to abler minds, being content to present here a description of how one plan works in our particular case. Possibly some other method of handling standard costs might work just as well, the choice of methods depending largely on the objectives of the management and the services expected of standard costs. The basic standard cost plan described in this article has the advantage of giving actual costs while at the same time providing a gauge or tool of measurement in the form of standards.

The system described herein is flexible and can be adapted to a small or large concern. The only difference in the accounting requirements of various concerns is that some may require more refinements or breakdowns than others.

Books Used

The books used are as follows: general ledger, general journal, accounts receivable ledger, accounts payable ledger, voucher register, sales book, cash book, asset ledger, factory ledger and factory journal.

The accounts receivable and accounts payable ledgers are the loose-leaf type designed for use with bookkeeping machines. Postings to the ledger give at one writing the customer's statement,

the ledger sheet, and an entry in the book of original entry. This means that the sales book, cash book, and voucher register are designed for this machine accounting.

Accounts Receivable Ledger

Debits to the ledger sheets are made when the sales invoices are listed in the sales book. At the same writing the debits to the statements are entered. Credits to the ledger are made when cash receipts are listed in the cash book and when credits or returns are listed on the returned sales sheets, which constitute a separate section of the sales book. Whenever postings are made, the information is recorded on duplicate statements, in the ledger and in books of original entry. Statements are always up-to-date and are sent out regularly on the first of the month.

Accounts Payable Ledger

Credits to the ledger are made when purchase invoices are listed in the voucher register. At one writing entries are made to the voucher, remittance statement, ledger and voucher register. Debits are made when checks are listed in the credit side of the cash book. At one writing we fill in the check, remittance statement, entry to the ledger and the cash book.

Asset Ledger

The asset ledger is merely a detail of the assets as represented by the general ledger accounts. Each sheet has a section for asset charges, credits and balances, a section for depreciation charges, credits and balances, and a net asset balance column. Depreciation is calculated on each sheet in this ledger at the end of each month and is the basis for the monthly depreciation entry. This gives an accurate breakdown of depreciation expense by departments for use in recording the departmental expenses in the factory ledger.

Factory Ledger

The factory ledger contains the inventory accounts in greater detail than the general ledger. These include raw materials, process inventories and finished stocks. The latter two groups do not appear in the general ledger. The factory ledger also has factory expense control accounts, cost of sales, and departmental expense

accounts. All standard costs or values appear in this ledger; no standards appearing in the general ledger. Hence, no standards enter into the balance sheet.

Chart of Accounts

The first essential is to have the general ledger accounts adequately described and classified in some logical arrangement. It will be noted that the asset and liability accounts are arranged in the order in which they appear on the balance sheet.

GENERAL LEDGER ACCOUNTS

Cash and Receivables
A 1 Cash in Banks
A 2 Petty Cash Funds
A 10 Customers Accts. Rec.
A 19 Res. for Doubtful Accts.

Material Purchases
B 2 Silk
B 4 Cotton
B 23 Silk Throwing Purchased
B 51 Spun Silk
B 54 Dyeing
B 55 Packing Materials
B 95 Shipping Supplies Invent.
B 99 Inventory Account

Other Assets
C 21 Local Taxes Prepaid
C 22 License Prepaid
C 23 Interest Prepaid
C 25 Insurance Prepaid
C 27 Rentals Prepaid

Property Accounts
D 1 Land
D 5 Buildings
D 55 Res. for Deprec.
D 10 Building Equipment
D 60 Res. for Deprec.
D 15 Machinery & Equipment
D 65 Res. for Deprec.
D 15T Mach. & Equip.—Throwing
D 65T Res. for Deprec.
D 20 Office Fur. & Fix.
D 60 Res. for Deprec.
D 25 Office Mechanical Appl.
D 75 Res. for Deprec.
D 35 Automobiles
D 85 Res. for Deprec.

Payables
E 1 Notes Payable—Banks
E 5 Notes Payable—Trade
E 12 Accounts Payable
E 27 Wages & Salaries Accrued
E 28 Interest Accrued
E 32 Accrued Power & Light
E 43 Res. for Federal Taxes

Other Liabilities
F 24 Res. for Legal & Professional
F 25 Res. for Franchise Tax

Capital and Surplus
G 1 Capital Stock Authorized "A"
G 3 Capital Stock Authorized "B"
G 10 Capital Surplus
G 21 Earned Surplus
G 32 Profit & Loss—Current Year
G 37 Federal Taxes Paid
G 38 State Taxes Paid

Sales and Sales Returns
H 5 Sales
H 55 Sales Returns

Manufacturing Expenses
K 3 Mill Payrolls and Salaries
K 13 Rentals
K 21 Supplies
K 22 Repairs
K 32 Power and Light
K 34 Freight In
K 49 Misc. Expenses
K 52 Depreciation Expense
K 53 Insurance Expense
K 54 Local Taxes

Delivery Expense
L 1 Shipping Dept. Payroll
L 2 Shipping Dept. Expenses
L 5 Shipping Dept. Fixed Charges
L 6 Cartons and Cases
L 9 Automobile Expenses
L 12 Freight Out
L 21 Postage—Parcel Post
L 22 Return Expense

Selling Expense

M 1 Commissions
M 2 Selling Office Salaries
M 5 Selling Office Rentals
M 8 Selling Office Telephone
M 9 Selling Office Expense
M 17 Sample Expense
M 21 Advertising

General Administrative Expense

M 52 General Office Salaries
M 53 General Executive Salaries
M 55 General Office Fixed Charge
M 57 General Travel Expense
M 58 General Telephone
M 59 General Office Expense
M 61 Donations to Charity
M 62 Legal & Professional
M 65 Franchise Tax
M 66 Provision for Bad Debts
M 68 Collection Expense
M 71 Office Postage

Other Income

N 1 Discounts Received
N 2 Interest Received
N 4 Sundry Sales

Other Charges

N 51 Discounts Allowed
N 52 Interest Paid
Z 1 Factory Ledger Transfer

The "B" and "K" accounts are control accounts for similar accounts in the factory ledger, and are the means of tying in the cost ledger with the general ledger. The accounts of the factory (cost) ledger are as follows:

B 1 Purchases (Credit Control)
B 212 Raw Silk—78%
B 213 Raw Silk—85%
B 214 Raw Silk—90%
B 221 6thd. Thrown Silk
B 222 7thd. Thrown Silk
B 223 4thd. Thrown Silk
B 224 3thd. Thrown Silk
B 225 5thd. Thrown Silk
B 227 2thd. Thrown Silk
B 234 Resist Dyed Silk
B 41 Cotton Yarn
B 51 Spun Silk
B 54 Dyeing
B 55 Packing Materials
B 901 Process Inventories, etc., for each style or product class
B 901F Finished Stock, etc., for each style or product class
B 42X Imperfect Stock, etc., for each class
Z 4 Inventory Reserve
K 3 Mill Payrolls—Credit Control
K 13 Rentals—Credit Control
K 21 Supplies—Credit Control
K 22 Repairs—Credit Control
K 32 Power & Light—Credit Control
K 34 Freight In—Credit Control
K 49 Misc. Expense—Credit Control
K 52 Depreciation—Credit Control
K 53 Insurance—Credit Control
K 54 Local Taxes—Credit Control
Z 1 General Ledger Transfer
Z 2 Standard Control
Z 7 Excess Loss on Imps. (Std.)
Z 16 Material Usage (Std.)
Z 17 Packing Material Usage (Std.)
J 5 Cost of Sales
R 31 42gg. Knitting Dept. Exp.
R 32 48gg. Knitting Dept. Exp.
R 33 Looping & Seaming Dept. Expense
R 4 Boarding Dept. Expense
R 8 Finishing Dept. Expense
R 9 Packing Dept. Expense
T 2 Throwing Plant Expense

Accounting for Purchases

Purchase invoices are entered in the voucher register in the above described method, making the distribution to the proper general ledger accounts. For entry in the factory ledger, manufacturing expense invoices and materials invoices must be treated separately. To prepare for entry in the factory ledger, all "K"

manufacturing expense invoices are listed on columnar work sheets giving the proper allocation to departments. The work sheet for account K-22, Repairs:

	R31	R32	R33	R4	V14	T2	Total
Textile Machine Works.....	325.65	541.61					867.26
Union Spec. Machine.....			12.25				12.25
Proctor & Schwartz.....				20.76			20.76
Atwood Machine Company..						121.26	121.26
Otis Elevator Company.....					5.75		5.75
Frick Plumbing Company...					25.75		25.75
	325.65	541.61	12.25	20.76	31.50	121.26	1,053.03

At the end of the month factory journal entries are made crediting the credit control accounts and debiting the departmental accounts. For repairs the entry would be:

	Factory Journal Entry *Repairs Expense*	*Debit*	*Credit*
R 31	42gg. Dept. Expense.....	$325.65	
R 32	48gg. Dept. Expense	541.61	
R 33	Looping & Seaming Dept.	12.25	
R 4	Boarding Dept. Exp.	20.76	
V 14	Mill General Dept. Exp.....	31.50	
T 2	Throwing Dept. Exp.....	121.26	
K 22	Repairs		$1,053.03

For the factory ledger, material invoices are priced and extended at standard values and entered under the respective accounts with the corresponding credit set up in B-1, Purchases (Credit Control). Below are shown the factory ledger accounts with purchases and materials, illustrating how the actual and standard cost figures are carried in the same account and the method of showing cost ratios. Amounts marked with asterisks (*) are red or deduction items.

FACTORY LEDGER ACCOUNTS

B-1 Purchases—Credit Control Account

			Cr. *Actual*	*Standard*
Oct.	13	B-212	$1,774.50	$2,184.00
"	15	B-41	1,120.75	1,121.40
"	25	B-41	602.75	625.41
"	26	B-214	3,140.20	3,204.84
"	26	B-212	1,950.50	2,152.00
"	5	B-55	69.75	67.50
"	8	B-55	610.75	635.00
"	15	B-55	602.05	589.26
"	25	B-55	16.25	8.00
"	28	B-212	1,780.25	2,152.00
			$11,667.75	$12,739.41

B-212 Raw Silk 78% Grade

			Dr. *Actual*	*Standard*	
Oct	1	Balance	$2,668.00	$3,049.75	
"	13	Mitsui & Co.	1,774.50	2,184.00	
"	26	Hara & Co.	1,950.50	2,152.00	
"	28	Mitsui & Co.	1,780.25	2,152.00	
			$8,173.25	$9,537.75	85.7 Ratio
"	31	Thrown Entry	*6,740.00	*7,870.50	
"	31	Balance	$1,433.25	$1,667.25	

B-214 Raw Silk 90% Grade

			Dr. *Actual*	*Standard*	
Oct.	1	Balance	$4,015.20	$4,196.26	
"	26	Gunze Silk Corp.	3,140.20	3,204.84	
			$7,155.40	$7,401.10	96.7 Ratio
"	31	Thrown Entry	*4,360.00	*4,898.40	
"	31	Balance	$2,795.40	$2,502.70	

B-41 Cotton Yarn

			Dr. *Actual*	*Standard*	
Oct.	1	Balance	$2,060.10	$2,167.50	
"	15	Aberfoyle Mfg. Co.	1,120.75	1,121.40	
"	25	Boger & Crawford	602.75	625.41	
			$3,783.60	$3,914.31	96.8 Ratio
"	31	Process Entry	*655.35	*677.00	
"	31	Balance	$3,128.25	$3,237.31	

B-55 Packing Materials

			Dr. *Actual*	*Standard*	
Oct.	1	Balance	$1,292.86	$1,315.71	
"	5	Kaumagraph Co.	69.75	67.50	
"	8	Cons. Litho Corp	610.75	635.00	
"	15	R. A. Feroe	602.05	589.26	
"	25	Am. Trade Mark	16.25	8.00	
			$2,591.66	$2,615.47	99.0 Ratio
"	31	Used Entry	*1,317.50	*1,329.30	
"	31	Balance	$1,274.16	$1,286.17	

B-221 6thd Thrown Silk 10 Turns

			Dr. *Actual*	*Standard*	
Oct.	1	Balance	$4,632.25	$5,253.60	
"	31	Thrown Entry	5,998.20	6,599.70	
			$10,630.45	$11,853.30	89.8 Ratio
"	31	Used for Process	*5,883.78	*6,552.09	
"	31	Balance	$4,746.67	$5,301.21	

B-222 7thd Thrown Silk 10 Turns

			Dr. *Actual*	Dr. *Standard*	
Oct.	1	Balance	$3,595.60	$5,126.75	
"	31	Thrown Entry	4,328.00	4,769.50	
			$7,923.60	$8,896.25	89.0 Ratio
"	31	Used for Process	*2,310.98	*2,596.61	
"	31	Balance	$5,612.62	$6,300.64	

B-224 3thd 25 Turns Thrown Silk

			Dr. *Actual*	Dr. *Standard*	
Oct.	1	Balance	$2,560.72	$3,742.16	
"	31	Thrown Entry	9,319.50	9,479.00	
			$12,880.22	$13,221.16	97.3 Ratio
"	31	Used for Process	*8,984.82	*9,234.14	
"	31	Balance	$3,895.40	$3,987.02	

B-223 4 thd 18 Turns Thrown Silk

			Dr. *Actual*	Dr. *Standard*	
Oct.	1	Balance	$2,757.25	$3,012.10	
"	31	Thrown Entry	6,567.10	7,057.90	
			$9,324.35	10,070.00	
"	31	Used for Process	*5,527.29	*5,969.00	92.6 Ratio
"	31	Balance	$3,797.06	$5,101.00	

At the end of the month the total of invoices entered on expense work sheets and in various material accounts are checked with summaries in the voucher register plus any possible entries from general journal or other books of original entry.

Accounting for Labor

The original records for labor originate with the employee himself. Each employee fills out a labor ticket each day showing operation, production and time. These labor tickets are illustrated in Exhibits 1, 2, 3 and 4. Before going to the office, these are checked for accuracy by each department through its records of work received from operators.

These labor cards are priced and extended and posted to the conventional payroll sheet. After the payroll is completed for earnings it forms the basis for the payroll voucher entered on the voucher register.

Clock No.	Name of Operator	Dept.	Style No.
428	Marian Boyce	R8	901

DIRECT LABOR DAY WORK

Form 113

Mark X for Operation Performed

1 Looping	2 Grey Examining	3 Mach. Boarding	4	5 Single Transfer	6 Size Label	7 Fold, Band for Stock	8	9 Packing No Cellophane	41	42 Label Boxes	43
11 End Pulling	12 Grey Mending	13 Form Boarding	14	15 Double Transfer	16 Rider Tag	17 Imp. Packing	18	19 Packing Cello. Envel.	44	45 Stamp Box	46
21 Seaming	22	23 Pairing	24	25 Imp. Transfer	26	27 Packing Cellophane	28	29 Packing 2 Pr. Gift Bx.	47	48 Wrap Box	49

Operations Not Printed	Hours	Mins.	Actual Rate
	5		40
Date	**Dozens**	**Pcs.**	**Earnings**
10-12-34	45		2.00

Clock No.	Name of Operator	Dept.	Style No.
312	Helen Kase	R33	901

DIRECT LABOR PIECEWORK

Form 111

Mark X for Operation Performed

1 X Looping	2 Grey Examining	3 Mach. Boarding	4	5 Single Transfer	6 Size Label	7 Fold, Band for Stock	8	9 Packing No Cellophane	41	42 Label Boxes	43
11 End Pulling	12 Grey Mending	13 Form Boarding	14	15 Double Transfer	16 Rider Tag	17 Imp. Packing	18	19 Packing Cello. Envel.	44	45 Stamp Box	46
21 Seaming	22	23 Pairing	24	25 Imp. Transfer	26	27 Packing Cellophane	28	29 Packing 2 Pr. Gift Bx.	47	48 Wrap Box	49

Operations Not Printed	Hours	Mins.	Actual Rate
	8		142
Date	**Dozens**	**Pcs.**	**Earnings**
10-12-34	35		4.97

EXHIBITS 1 AND 2

Clock No.	Name of Operator	Dept.	Style No.
340	Dorothy Winters	R33	

INDIRECT LABOR—D. W. OR P. W. Form 115 — Mark X for Operation Performed

11	12 Mill Clerk	13 Inspector	14 Trucking Carrying	15 Sweep, Clean or Oil	16 Overtime	17 Apprentice or Teach	18 Allowed Time	19 Adjusting Machine	41 Back Winding	42 Unravel Legs	43
21 Experimental	22 Erecting Machines	23 Return Expense	24 Selecting Samples	25 Re-working Re-dyes	26	27 Reconditioning Fin. Stock	28 Idle on Machine	29	44	45	46
31	32	33	34	35 Watchman	36 Engineer and Fireman	37	38	39	47 Repairs, Bldg. Equipt.	48 Repairs, Mfg. Equipt.	49

Operations Not Printed	Hours	Mins.	Actual Rate
	8		50
Date 10-12-34	Dozens	Pcs.	Earnings
	20		4.00

1051 F Knitting Dept. Direct Labor Ticket

Princess Royal Hosiery Mills, Inc.

Received from the following persons production as follows:—Menders

Date 10-10-34 Mach. Nos. 11 Style No. 901 Dozen 35

Clock No.	Name	Operation	Hours Worked	Rate Per Dozen	Earnings
		Legging			
		Legging Helper			
		Topping			
200	Anna Pinvalter	Topping	8	345	6.04
201	Dorothy Moyer	Topping	8	345	6.04
150	Harry Weiner	Footing	8	35½	12.32

Footers will mark production of each size on this line	8½	9	9½	10	10½
	0	6	18	7	4

Received by FL

EXHIBITS 3 AND 4

The labor cards are then sorted for indirect and direct labor. The indirect labor is summarized by classes of expense. At the end of the month this summary of indirect labor forms the basis for a factory journal entry, distributing the labor to its respective expense accounts as follows:

Factory Journal Entry
Indirect Labor

		Dr.	*Cr.*
R 31	42gg. Dept. Exp.	$1,210.50	
R 32	48gg. Dept. Exp.	1,075.50	
R 33	Loop & Steam Dept.	557.25	
R 4	Boarding Dept. Exp.	352.26	
R 8	Finishing Dept. Exp.	595.65	
R 9	Packing Dept. Exp.	125.86	
T 2	Throwing Dept. Exp.	785.26	
K 3	Mill Payrolls		$4,702.28

The direct labor cards are sorted by operations and style or product classes and summarized on work sheets showing production, hours and earnings. The summary is extended for standard hours and standard labor cost and is then ready for the monthly summary entry.

On the direct labor summary for the month, actual and standard hours are extended by the normal burden rate of each department which gives us the amount of departmental expense absorbed in inventory or cost. This is combined with entry for direct labor as follows:

Factory Journal Entry
Direct Labor and Burden

		Dr.		*Cr.*	
		Actual	*Standard*	*Actual*	*Standard*
B-901	Labor	$6,039.50	$5,917.83		
	Burden	3,331.69	3,073.92		
B-906	Labor	1,376.07	1,363.66		
	Burden	756.17	780.86		
B-1012	Labor	12,404.41	12,297.97		
	Burden	7,245.71	7,145.49		
B-1015	Labor	10,735.78	10,965.21		
	Burden	7,589.25	7,124.21		
Z-2	Standard Control				$30,544.67
K-3	Mill Payrolls			$30,555.76	
R-31	42gg. Dept. Exp.			8,428.21	7,965.21
R-32	48gg. Dept. Exp.			7,524.82	7,089.89
R-33	Loop & Seam Exp.			1,535.11	1,531.75
R-4	Boarding Exp.			852.21	902.42
R-8	Finishing Exp.			582.47	635.21

Labor Ratios Report

A weekly report showing the trend of labor is developed by ratios of actual to standard. Any changes in rate of pay or efficiency are readily detected.

KNITTING DEPARTMENT

Labor Report—Legging (Inc. Helping)

	No. 901		No. 902		No. 1016	
Week Ending	*Labor Ratio*	*Output Ratio*	*Labor Ratio*	*Output Ratio*	*Labor Ratio*	*Output Ratio*
Feb. 6	93	94	91	101	88	98
" 13	94	96	89	101	91	118
" 20	93	91	88	100	95	94
" 27	95	100	91	102	95	102
Mar. 5	93	88	90	96	92	117
" 12	94	86	90	96	92	123
" 19	94	107	90	93	93	97
" 26	101	150	108	94	85	103
Apr. 2	94	100	89	88	86	99

Multiple Inter-Ledger Accounts

It will be noticed that we use multiple inter-ledger accounts, i.e., the tie-up between the factory ledger and the general ledger is through several control accounts instead of one. Let us take just a moment to see how these controls operate.

The list of accounts in the factory ledger shows the following as control accounts: B-1 Purchases, all K expense accounts, and Z-1 General Ledger Transfer. B-1 Purchases is the credit control account in the factory ledger for all purchases of inventory items. The "B" material accounts in the general ledger are in reality "debit control" accounts. All debits to the "B" accounts in the general ledger will be credits to the B-1 Purchases credit control account in the factory ledger. The "B" debit control accounts of the general ledger therefore balance with the "B-1" credit control account in the factory ledger. The following entries for purchases illustrate how these accounts operate:

General Journal Entry
Material Purchases

	Dr.	*Cr.*
B-2 Silk (debit control)	$8,645.45	
B-4 Cotton (debit control)	1,723.50	
B-55 Packing Material (debit control)	1,298.80	
E-12 Accounts Payable		$11,667.75

Factory Journal Entry
Material Purchases

		Dr.	*Cr.*
B-212	Raw Silk 78%	$5,505.25	
B-214	Raw Silk 90%	3,140.20	
B-41	Cotton Yarn	1,723.50	
B-55	Packing Materials	1,298.80	
B-1	Purchases (credit control)		$11,667.75

On the general ledger no withdrawals are made from the "B" material purchase (debit control) accounts. These accounts are used only to record material purchases. They remain open until the end of the year when they are closed out into the profit and loss account.

For balance sheet use, the inventory as shown in the factory ledger is set up in the general ledger in the account "B-99 Inventory." The other "B" material accounts are then disregarded and "B-99" is used for the balance sheet. This is done by a journal entry for the general ledger as follows:

		Dr.	*Dr.*
B-99	Inventory	$121,225.25	
Z-1	Factory Ledger Transfer		$121,225.25

No entry is made on the factory ledger. The above entry is reversed at the beginning of each month. The balances of all the "B" accounts in the factory ledger, except "B-1 Purchases" comprise the inventory. These accounts, samples of which are shown on pages 965-67, show all withdrawals and additions. At the end of the year they are adjusted to the physical inventory.

The "Z-1 General Ledger Transfer" account in the factory ledger, serves as the account through which transfers of various miscellaneous charges or credits are made to the general ledger. This account also receives transfers from the general ledger. A similar account appears in the general ledger, "Z-1 Factory Ledger Transfer." All debits to "Z-1 Factory Ledger Transfer" in the general ledger will appear as credits to "Z-1 General Ledger Transfer" in the factory ledger. A typical transfer is illustrated in the entry recording return expense shown on page 991.

The "K" expense accounts in the general ledger are debit control accounts. For each debit control in the general ledger we have a credit control in the factory ledger. These accounts are charged on the general ledger for all expenses applying to them.

On the factory ledger the "K" credit control accounts are credited for the same amounts as the debits in the general ledger. The debits on the factory ledger offsetting these credits are to the departmental expense accounts. The "K" expense accounts in the general ledger are not closed but carried as open accounts until the end of the year when they are closed into the profit and loss account. The "K" expense credit accounts in the factory ledger are also carried as open accounts until at the end of the year.

At the close of the year all accounts in the factory ledger except inventory accounts are closed out or cleared into the "Z-1 General Ledger Transfer" account. This corresponds with the closing of the general ledger accounts into the profit and loss account. The only balances remaining on the factory ledger after closing at the end of the year are the physical inventory accounts after adjusting the book balances. The accounts in the factory ledger closed out comprise "K" expense credit control accounts, "Z" variance or usage accounts, "J" cost of sales, and "R" departmental expense over or under absorbed balances. No closing of accounts takes place for the monthly statements. It will be seen that no balances will appear in the "B" material accounts in the general ledger except in "B-99 Inventory" which includes all inventories, the details of which appear in the various "B" accounts of the factory ledger.

Accounting for the Throwing Department

The bulk of the material used is raw silk which must be thrown into the desired threads for use in knitting. The raw silk therefore passes into another stage called "Thrown Silk." The labor and burden of the throwing plant or department must be added to the raw silk cost to obtain the cost of thrown silk. This takes us into cost procedure for throwing plants. The proper method to get accurate costs is to departmentalize the plant and use departmental burden rates, etc. But because our throwing plant is small in size and because of our desire to avoid a multitude of details, we consider the whole throwing plant as a single department of our main plant. The burden rate is applied to the various classes of yarn in a blanket normal rate as shown in the following procedure.

Throwing labor is recorded on separate labor cards shown as

THROWING DEPARTMENT LABOR TICKET

PRINCESS ROYAL HOSIERY MILLS, INC.

No. 42 Name Mary Shuck two weeks ending 10-16-34

Operation

FIRST WEEK			SECOND WEEK		
Date	Hrs.	Operation	Date	Hrs.	Operation
Sunday			Sunday		
Monday	8	5B	Monday	8	5B
Tuesday	8	"	Tuesday	8	W
Wednesday	8	"	Wednesday	8	W
Thursday	8	"	Thursday	8	5B
Friday	8	"	Friday	8	"
Saturday			Saturday		

If operation is different from operation in the Heading of this ticket, the operation worked on must be noted opposite the day in operation column. (Use code.)

DISTRIBUTION (FOR OFFICE USE ONLY)

Code	Operation	Hours	Amount
SOK	Prepare and Soak		
W	Winding	16	5.60
5 B	5 B Spinning	64	22.40
1 Sp	1st Spinning		
D	Doubling		
2 Sp	2nd Spinning		
ST	Steaming		
R	Reeling		
W Dy	Winding Dyed or B. O.		
R D	Redraw		
C	Coning		
P	Packing and Shipping		
Total Hours		80	
Rate Per Hour		.35	
Total Earnings			28.00

EXHIBIT 5

Exhibit 5. These cards are extended at the end of the payroll period, which in our throwing plant is for two weeks, and form the basis for the payroll as entered on the payroll sheets. These cards are then summarized on a summary card showing the distribution by operations. This summary for a four-week period is entered on a work-sheet (Exhibit 6) for distribution to the various threads thrown.

The only distribution obtained from the labor cards is by operations. Distribution to kinds of thread is made on the basis of standard labor. The standard labor for each kind of thread is computed by determining the standard labor cost required for the quantity of each kind of thread produced. In this case shipments from the throwing plant are used as production. The total actual labor for each operation is entered beside the total standard. The ratio of actual to standard is then determined for each operation, and by applying these ratios to the standard figures for each type of thread the actual for each type of thread by operations is determined.

For burden distribution, the actual productive hours are distributed to the kinds of yarn on the basis of standard hours. First a ratio is determined by dividing the total actual hours of the throwing department by the total standard hours. This ratio is then applied to the standard hours of each type of thread to give the actual hours for each type:

DISTRIBUTION OF LABOR HOURS—THROWING DEPARTMENT

	Prod.	*Standard Hours per lb.*	*Standard Hours*	*Actual Hours*	
6 thd. 10 turns	2,231.50	1.15	2,566.23	2,740.87	
7 thd. 10 turns	1,636.39	1.05	1,718.21	1,838.47	
4 thd. 18 turns	2,035.91	1.39	2,829.91	3,022.12	
3 thd. 25 turns	2,250.91	1.68	3,771.53	4,030.54	
			10,885.88	11,632.00	106.9 Ratio

To this four-week period must be added accruals for production not included in pay periods in order to correspond with the calendar month. The actual and standard burden absorbed is determined by extending actual and standard hours by the normal burden rate.

We are now ready to make the entry transferring the material, labor and burden expense to the Thrown Silk account:

THROWING PLANT—DIRECT LABOR DISTRIBUTION

4 weeks ending Oct. 20, 1934

	6 thd. 10 turns			7 thd. 10 turns			4 thd. 18 turns			3 thd. 25 turns			Total		Ratio
	Act.	Std. per#	Std.	Act.	Std. per#	Std.	Act.	Std. per#	Std.	Act.	Std. per#	Std.	Actual	Stand.	a/s
Production	Lot 510— 896.25 lbs. Lot 513—1335.25 lbs.			Lot 511—1011.15 lbs. Lot 514— 625.24 lbs.			Lot 509— 825.76 lbs. Lot 515—1210.15 lbs.			Lot 512— 925.76 lbs. Lot 517—1325.15 lbs.					
		2231.50	lbs.		1636.39	lbs.		2035.91	lbs.		2250.91	lbs.			
Soaking	41.85	.015	33.47	30.59	.015	24.55	37.90	.015	30.54	42.00	.015	33.76	152.34	122.32	124.5
Winding	294.25	.142	316.87	216.00	.142	232.37	268.50	.142	289.10	297.00	.142	319.63	1075.75	1157.97	92.9
5 B Spinning.....	255.00	.107	238.77	201.00	.115	188.18	156.60	.072	146.59	223.30	.093	209.33	835.90	782.87	106.8
2nd Spinning	52.80	.021	46.86	44.25	.024	39.27	96.45	.042	85.51	127.10	.050	112.55	320.60	284.19	112.8
Steaming	13.36	.007	15.62	9.79	.007	11.45	17.40	.010	20.36	19.20	.010	22.51	59.75	69.94	85.4
Redrawing	133.92	.067	149.51	83.60	.057	93.27	166.00	.091	185.27	241.90	.120	270.11	625.42	698.16	89.6
Coning	133.00	.061	136.12	83.10	.052	85.09	181.10	.091	185.27	259.25	.118	265.61	656.45	672.09	97.7
Packing	37.20	.015	33.47	27.25	.015	24.55	33.90	.015	30.54	37.40	.015	33.76	135.75	122.32	111.0
	961.38		970.69	695.58		698.73	957.85		973.18	1247.15		1267.26	3861.96	3909.86	

EXHIBIT 6

Factory Journal Entry
Cost of Thrown Silk

	Dr.		Cr.	
	Actual	*Standard*	*Actual*	*Standard*
B-221 6 thd. Thrown Silk	5,998.20	6,599.70		
B-222 7 thd. Thrown Silk	4,328.00	4,769.50		
B-223 4 thd. Thrown Silk	6,567.10	7,057.90		
B-224 3 thd. Thrown Silk	9,319.50	9,479.00		
B-212 Raw Silk			6,740.00	7,870.50
B-213 Raw Silk			4,360.00	4,898.40
B-214 Raw Silk			6,450.00	6,672.00
K-3 Mill Payrolls			4,785.60	4,842.00
T-2 Dept. Expense			3,877.20	3,623.20

The credit to raw silk is for silk thrown as per throwing production. Payroll and throwing expense account are credited for labor and burden respectively. The debit naturally is made up of raw silk cost plus labor and burden for throwing.

Accounting for Material Entering Process

We are now ready for the transfer of material to "work in process." Standard material going into process inventories is determined by extending the production of the knitting department by the standard material (as per cost sheets) per dozen for each kind of material. The "actual" material is determined by extending "standard" material times normal usage, times price ratio. Exhibit 7 illustrates how these amounts are distributed and accumulated. This price ratio is found by dividing actual by standard in the material accounts, as illustrated by Account B-221 on page 966 where a price ratio of 89.8 is arrived at. The normal usage factor is a compensating ratio to bring our consumption of materials closer to the actual usage. Should the standard allowance for waste in the standard material be off, this factor will correct it. The final check on the waste and usage factor is the usage adjustments calculated when the physical inventories are taken. We can then determine how close we were in our usage or waste allowances. This could be done without the physical inventory were it not for the unknown quantity of silk on the knitting machines which cannot be determined with any fair degree of accuracy until the machines are shut down for inventory. It will be noticed that this usage ratio, in addition to its use in determining actual materials, is applied to the standards previously calculated to get the standard materials used to credit to the in-

DISTRIBUTION OF MATERIAL TO WORK IN PROCESS

	B901		B1012		B1015		Total	Usage	Price	Material Used	
	Actual	*Standard*	*Actual*	*Standard*	*Actual*	*Standard*	*Standard*	*Ratio*	*Ratio*	*Actual*	*Standard*
B-221 6 thd. Thrown Silk											
Standard as per Production				$3,025.67		$3,526.42	$6,552.09	100			$6,552.09
Actual Value Used.....			$2,717.78		$3,166.00				89.8	$5,883.78	
B-222 7 thd. Thrown Silk											
Standard as per Production		$2,125.00		524.60			2,649.60	98			2,596.61
Actual Value Used.....	$1,853.98		457.00						89.0	2,310.98	
B-223 4 thd. Thrown Silk											
Standard as per Production		5,325.75				526.21	5,851.96	102			5,969.00
Actual Value Used.....	5,030.79				496.50				92.6	5,527.29	
B-41 Cotton Yarn											
Standard as per Production		465.72		225.10			690.82	98			677.00
Actual Value Used.....	441.65		213.70						96.8	655.35	
B-224 3 thd. Thrown Silk											
Standard as per Production				6,752.20		2,575.21	9,327.41	99			9,234.14
Actual Value Used.....			6,514.82		2,470.00				97.3	8,984.82	
	$7,326.42	$7,916.47	$9,903.30	$10,527.57	$6,132.50	$6,627.84	$25,071.88			$23,362.22	$25,028.84

EXHIBIT 7

ventory account. This gives rise to the material usage figure in the following entry. The standards used for process were less than should have been used as per standard material costs. If a monthly inventory of materials were taken or withdrawals could be calculated by means of requisitions, no usage ratio would be applied to determine the actual value. The requisitions would determine this.

Factory Journal Entry

Material Entering Process

		Dr.		Cr.	
		Actual	*Standard*	*Actual*	*Standard*
B-901	Process Inventory	7,326.42	7,916.47		
B-1012	Process Inventory	9,903.30	10,527.57		
B-1015	Process Inventory	6,132.50	6,627.84		
B-221	6 thd. Thrown Silk			5,883.78	6,552.09
B-222	7 thd. Thrown Silk			2,310.98	2,596.61
B-223	4 thd. Thrown Silk			5,527.29	5,969.00
B-224	3 thd. Thrown Silk			8,984.82	9,234.14
B-41	Cotton Yarn			655.35	677.00
Z-16	Material Usage Acct.....				43.04

A material usage report is made monthly as follows:

Material Usage Report

		Actual Val. Material Used A	*Std. Val. Material Used* B	*Std. Val. Material Should Use* C	*Price Ratio* A/B	*Usage Ratio* B/C	*Cost Ratio* A/C
B-221	6 thd. Silk	$5,883.78	$6,552.09	$6.552.09	90	100	90
B-222	7 thd. Silk	2,310.98	2,596.61	2,649.60	89	98	87
B-223	4 thd. Silk	5,527.29	5,969.00	5,851.96	93	102	95
B-224	3 thd. Silk	8,984.82	9,234.14	9,327.41	98	99	97
B-41	Cotton	655.35	677.00	690.82	97	98	95
B-55	Pack Matl.	1,317.50	1,329.30	1,450.70	99	92	91
		$24,679.72	$26,358.14	$26,522.58	94	99	93

Actual value of usage gain, $154.70.

The Setting of Standards

At this point I want to digress somewhat and discuss how our standards are set up and their use in getting unit costs. These standards are set up at the beginning of the year and do not change regardless of price trend. They remain fixed and therefore represent indexes with which actuals are compared. The only reason for changing standards is that important changes are sometimes made in construction or in method of operation. The only changes

likely to be made at the end of the year are in the burden, and possibly in labor rates when radical changes took place in labor conditions, such as have occurred under N.R.A.

Standard Labor and Burden

Standard labor rates in the case of piece work operations are, as a rule, the piece work rates in effect when the standards are

STANDARD LABOR AND BURDEN PER 100 DOZ.

PRINCESS ROYAL HOSIERY MILLS STYLE NO. 901 Date 7-1-34

Dept. Operation	Day Work √	Piece Work √	Standard Labor	Standard Hours	Burden Rate	Standard Burden
Knitting						
Legging		✓	105.70	110.00	.75	82.50
Topping		✓	3.45	0		
Footing		✓	3.520	35.00		26.25
Total Knitting			175.40			.0875
Looping and Seaming						
Looping		✓	14.20	21.00	.24	5.04
End Pulling		✓	1.50	0		
Seaming		✓	20.60	32.00		7.68
Examining		✓	6.20	12.00		2.88
Total Looping and Seaming			42.50			15.60
Boarding						
Boarding		✓	9.20	12.00	.60	7.20
Finishing						
Pairing		✓	5.75	13.00	.45	5.85
Total Finishing						
Packing						
Fold and Box for Stock	✓		1.80	5.00	.25	1.25
Transfer	✓		2.00	5.00		1.25
Packing—Cellophane Envs.	✓		3.50	8.00		2.00
Packing—Wrap in Cellophane						
Packing—Plain						
Total Packing			7.30			4.50

EXHIBIT 8

set. Standard hours for knitting represent machine hours based on time studies plus performance possibilities. Other departments have labor hours (based on time studies and past performance) for a means of absorbing burden.

The standard burden is the extension of standard hours times the departmental normal rate. This is illustrated in Exhibit 8. To determine the standard burden rates for each department we set up a detailed budget by departments annually, reflecting all proposed expenditures and set-ups. This budget shows indirect labor classified by nature of expense. In the departments affected, indirect labor also includes mending and redyeing expenses. The distribution of power is on the basis of connected horsepower plus lighting installed times a factor to cover the time used. Depreciation is calculated for each department from the asset ledger. Monthly charges are also calculated for each department separately. Insurance is distributed on the basis of valuation; rentals and real estate taxes, on floor space occupied. General or indirect departments (service departments) are redistributed to the direct departments on the basis of total department expenses plus direct labor. The normal rate of each department equals the total budgeted department expense divided by the normal production for that respective department expressed in standard machine or labor hours.

Normal capacity is defined by the Hosiery Code Authority as follows:

> From the fifty-two, eighty-hour weeks of the year, or other provision for the operation of productive machines as may be provided by amendment to the Code, deduct legal holidays and the time allowed for taking inventory in order to determine the maximum possible time that the knitting departments would be devoted to production. . . . Normal capacity will be stated at 75% of maximum capacity. . . . The deduction of 25% is to provide for loss of time due to breakdowns, pattern changes, making samples, seasonal fluctuations and other causes.

Standard Material

Standard material is obtained by multiplying the yarn weights required times the standard price of the materials. The standard prices are set at the beginning of a period and may run for several years without any change. The weights are determined by analysing a few representative stockings before dyeing, and weighing

each kind of yarn on a sensitive scale. The question now arises as to what weight to use. This is a case where a pound of silk is not a pound of silk. In purchasing raw silk we are invoiced on a conditioned weight which allows for 11% moisture. This is called the "invoiced weight or filature weight." The weight received at the throwing plant is not the same as the weight invoiced on account of moisture loss. In the throwing process soaps and oils increase the weight so that a lot of silk will clear the throwing plant with an increase of from 1% to 7%, or even greater, depending on soaking materials used. When received by our knitting department the silk is conditioned in a conditioning room having humidity of about 95%. This gives an additional increase in weight. So in taking sample stockings to be analyzed for weights, we allow them to dry, after which we have the thrown weight of the silk.

To simplify this weight problem, all weights in cost sheets and in all inventory accounts are expressed in terms of "invoiced weights or filature weights." When weighing our analyzed samples, we have a weight that is about 1% to 7% heavier than the "filature weight." All stockings made to the same specifications have approximately the same number of yards of thread knit in the fabric. Silk thread varies in size and weight per yard. In order to eliminate these variations out of our standard weights, we measure most of the thread ravelled from the sample stockings and find the actual weight per yard of thread. The weight of each kind of thread is modified by the relation of this weight per yard to a standard weight per yard. This standard weight per yard was determined from threads when the throwing clearance was about 2% to 3%. Through tests made on the machines, it was found that this was a substantial allowance for waste in the knitting department. So we take the thrown weight and call it the filature weight for cost calculations. Even though thrown weights show 8% to 10% gain over filature pounds, this will of course be reduced to 2% to 3% gain by modifying the weights obtained from such a sample by the standard weight per yard.

We have evolved this method of arriving at our weights in the absence of an expensive laboratory conditioning oven and scales. A conditioned weight is perhaps more desirable. But by our means we get the desired results in less time and effort.

STANDARD MATERIAL

PRINCESS ROYAL HOSIERY MILLS

STYLE NO. 901 Date 7-1-34

Where Used	Kind of Mat'l	Weight Calculation Per Dozen	Weight Oz. Per 100 Doz.	Standard Price Per Lb.	Standard Cost
Main Silk Leg	4 thd 14T Silk	76.9 Grs. × .0548* × .0775 Std. Grs. 1 Yd. / .1015 Act. Grs. 1 Yd. × 101% Waste Allowance = 86.0 Grs. Measured ÷ 846 Yds. Measured = .1015 Grs. Per Yd.	510	2.65	8446
Main Silk Foot	4 thd 14T Silk	26.5 Grs. × .0548* × Std. Grs. 1 Yd. / Act. Grs. 1 Yd. × 101% Waste Allowance = Grs. Measured ÷ Yds. Measured = Grs. Per Yd.	141	2.65	23.35
Welt	7 thd 10T Silk	72.4 Grs. × .0548* × .178 Std. Grs. 1 Yd. / .186 Act. Grs. 1 Yd. × 100% Waste Allowance = 72.4 Grs. Measured ÷ 391 Yds. Measured = .185 Grs. Per Yd.	382	2.01	47.98
Heel, High Spliss	7 thd 10 T Silk	9.8 Grs. × .0548* × 102 % Waste Allowance =	55	2.01	6.91
Heel to Heel		Grs. × .0548* × % Waste Allowance =			
Sole	90/2 cotton	18.8 Grs. × .0548* × 101 % Waste Allowance =	104	1.20	7.80
Toe	90/2 cotton	13.1 Grs. × .0548* × 101 % Waste Allowance =	73	1.20	5.48
Toe Reinf.	4 thd 14T Silk	1.7 Grs. × .0548* × ½ 101 % Waste Allowance =	9	2.65	1.49
Seam	90/3 cotton	3.3 Grs. × .0548* × 110 % Waste Allowance =	20	1.75	2.19
		Grs. × .0548* × % Waste Allowance =			
Total Raw Material per 100 Dozen Pairs					179.66
DYEING STANDARD					
241.5 × .0548 = 13.23 oz. × .25 per lb. × 105 % Bodyo Allowance					21.70

PACKING MATERIAL

Quantity	Description	Stand. Price/M	Amount	
400	Boxes	20.00	8.00	
400	Box Wraps	7.00	2.80	
800	Bands	1.00	.80	
1200	Cardboards Rd. Corners	1.00	1.20	
1200	Cellophane Envelopes	6.00	7.20	
2400	Transfers	.25	.60	
		1		20.60

* .0548 = Factor to convert grains per stocking to ounces per dozen pairs (96 ÷ 437.5)

EXHIBIT 9

Calculation for standard material is shown in Exhibit 9. The additional allowance for waste on the calculation makes allowance for extra waste in a "ringless" knitting process; also for extra waste in small sections of the stocking.

Standard Cost Summary

The first part of this form (Exhibit 10) is a summary of the information on the labor and material sheets with the addition of the item "Loss on Imperfects." This is the loss in value of seconds, etc., representing the difference between cost and realizable value of all qualities less than firsts. As the firsts must bear this

ALL FIGURES ARE HYPOTHETICAL

STANDARD COST SUMMARY PER 100 DOZ.

PRINCESS ROYAL HOSIERY MILLS STYLE NO. 901 Date 7-1-34

Materials			Standard Cost	Oct 1934 Ratio	Oct 1934 Actual	Ratio	Actual
Total Materials			179.66	92.6	166.20		
Labor	Knitting	176.40					
	Looping and Seaming	42.60	217.90	102.0	222.10		
Burden	Knitting	108.75					
	Looping and Seaming	16.60	124.35	104.4	129.90		
Total Mfg. Cost in Grey			521.91		523.20		
Dyeing			21.70	102.9	22.30		
Labor	Boarding	9.20					
	Finishing	5.76	14.96	102.0	16.26		
Burden	Boarding	7.20					
	Finishing	8.45	15.65	108.4	17.00		
Total Manufacturing Cost—Paired			574.21		577.76		
Loss on Imperfects *	30 % Basis		64.80	117.8	76.36		
Packing Materials			20.60	97.7	20.10		
Labor	Packing		7.30	106.0	7.76		
Burden	Packing		4.60	106.0	4.77		
Total Manufacturing Cost—Packed			671.41		686.67		
Delivery Expense			5.00	120.0	6.00		
General Administrative Expense	8.4% of cost		56.36	105.0	59.20		
Selling Expense	2.0% " "		13.43	80.0	10.75		
Commissions			40.00		40.00		
Full Cost Delivered			786.19		802.62		

* Loss on Imperfects calculation—

24.00	% Imps.	@ 123 Loss =	29.50		
5.08	% Sec.	@ 201 " =	11.73		
.16	% Srds	@ 321 " =	.51		
.20	% 4ths	@ 477 " =	.96		
.23	% Rags	@ 577 " =	1.32		
.22	% Leg Waste	@ 328 " =	.72		
.11	% Exam. "	@ 622 " =	.67		
30.00	% Total Imps, etc.		46.31	Total Loss ÷ 70 % Firsts = 66.80 Loss	

	Imps.	Sec.	Srds.	4ths
Cost Paired	5.74	5.74	5.74	5.74
Invent. Value	4.51	3.43	2.53	.95
Loss Per Doz.	1.23	2.31	3.21	4.79

EXHIBIT 10

EXHIBIT 10

additional cost, it is an essential part of the total cost. The calculation of this loss is made on the bottom of the cost sheet.

Work in Process Accounts

After this aside, we are ready to take up the flow of costs at the point where they enter the in process accounts. In these accounts in the factory ledger, the amounts for direct labor, for expense absorbed and for material and dyeing charges are recorded on one line. The purpose is to show in detail and in total in the process inventory account the current production from which we obtain the current actual cost ratios.

A process inventory account in the factory ledger is illustrated in Exhibit 11. The columns headed "material," "dyeing," "labor," "burden," are only memo. columns to show the elements of cost for current production. The total column is the active column to which other debits and all credits are posted.

Dyeing Costs

As we do not have our own dyeing department, all our dyeing is done by outside dyers. This simplifies the handling of dyeing costs. We are billed for hosiery dyed on the weight of the hosiery in the grey before dyeing. The price of dyeing in this case study is calculated at 25c. per pound. These dyeing invoices are entered the same as other purchases.

The basic standard dyeing cost is calculated by adding the weights of all materials before allowing for waste and extending this by the rate per pound plus an allowance to cover redyeing expenses. In Exhibit 9 is shown the calculation for style 901.

The invoices from the dyer show the style number, weight and amount in dollars of all hosiery dyed. These invoices are summarized on a columnar work sheet to show the number of pounds dyed of each style together with the invoiced cost. At the end of the month the total weight for each style is divided by the weight per dozen to convert weights to dozens. The dozens are multiplied by the standard dyeing per dozen which will give us the standard amount for dyeing to be charged to work in process. The actual amount will be the summary from the invoices. The entry on the factory journal is as follows:

FACTORY LEDGER ACCOUNT

B-901 Process Inventory

	Material		Dyeing		Labor		Burden		Total		
	Actual	*Standard*	*Actual*	*Standard*	*Actual*	*Standard*	*Actual*	*Standard*	*Actual*	*Standard*	*Ratio*
Balance									$10,234.25	$10,524.75	
Production	$7,326.42	$7,916.47	$275.75	$267.82	$6,039.50	$5,917.83	$3,331.69	$3,073.92	16,973.36	17,176.04	
									$27,207.61	$27,700.79	98.2
Fin. Stock entry									*18,190.75	*18,524.19	
Scrapped in Prod.									*75.20	*76.60	
Returns									173.24	176.40	

* Red—Deductions

EXHIBIT 11

Factory Journal Entry
Dyeing Costs.

		Dr.		Cr.	
		Actual	*Standard*	*Actual*	*Standard*
B-901	Process Inventory	$275.75	$267.82		
B-1012	Process Inventory	425.20	423.10		
B-1015	Process Inventory	254.60	210.50		
B-54	Dyeing			$955.55	$901.42

EXAMINERS REPORT

Causes	Imp. & Sec.	Mend-ers
Uneven Silk	33	
Knots in Silk	56	
Narrowing, Leg		
Narrowing, Foot		1
Topping		13
Imperfect Stitch		10
Pull Thread		11
Needle Marks		
Imperfect Welts		
Crepe Appearance	6	
Short Length	4	
Plaiting		
Looping	1	
Seaming		3
Unmatched Foot	16	
HARD TWIST	8	

Cause for Re-dyes	Exam-iners	Pair-ing
Odd Lengths		14
Mender Drops		7
Spotted or Soiled		
Shaded		

LOT TICKET

Lot No. F 8264 Doz. in Lot 25
Style No 901 Color PEBBLE Size 9½
Date Sent 10/5
Dyer BICK Date Ret'd 10/7
Doz. Boarded 25 By M. B. Date 10/7
Doz. Examined ____ By ____ Date ____
Doz. Paired 25 By K. M. Date 10/8

	Examiner	First Oper. Pairing	Pairing After Mending	
Doz. Firsts		1720		
" Imperfects		46	1	
" Seconds		18	2	
" Thirds				
" Fourths				
" Rags				
" Re-dyes		3	21	
" Menders		15		
" Re-boards				
" Odds		8		

REMARKS:

This Ticket must accompany lot thru Mill to Pairing.

Lot No. F 8264
Style No 901 Color PEBBLE

SENT TO DYERS

This coupon to be detached when sent to Dyers.

Lot No. F 8264 Doz. Ordered 25
Style 901 Size 9½ Color PEBBLE

FOLDED AND BOXED

Dozen to Stock 17 20

This coupon must accompany lot after pairing.

EXHIBIT 12

Journal Entry to Finished Stock

As our sales are to the retail trade only, making prompt delivery essential, it is necessary that we carry a substantial stock of finished hosiery in bulk and some stock packed in boxes ready for shipment. Our bulk stock is folded and banded and carried in stock containers. In filling orders, these stockings are taken from stock and packed in the customer's packing. Imperfects are packed up as produced and held for orders or shipping instructions. In transferring from process inventories to finished stock, we draw the line at the pairing operation. Any goods paired is considered finished stock, as it goes directly to the shelves or is packed for shipment. The summary of the pairers' or examiners' reports (Exhibit 12) on the finishing lot tickets provides the basis for the transfer. At this point the throw-outs are classified as to quality, i.e., imperfects, seconds, thirds, fourths and rags. Each of these qualities has a salvage value which in all cases happens to be less than cost. This loss in value between cost and realizable value is calculated and added to the value of the first

WORK SHEET FOR DETERMINING LOSS ON IMPERFECTS
Style 901

		Actual Inven. Val. Not inc. Packing		*Stand. Inven. Val. not inc. packing*	
	Dozens	*Per Doz.*	*Amount*	*Per Doz.*	*Amount*
Imps.	1,032-2/24	$4.40	$4,541.15	$4.51	$4,654.68
Seconds	88-14/24	3.43	303.83	3.43	303.83
Thirds	6-12/24	2.77	18.01	2.53	16.45
Fourths	10/24	1.10	.46	.95	.40
	1,132-1/24		$4,863.45		$4,975.36

Dr. to Imperfect Stock

	Standard Doz.	*Standard*	*Ratio Act St.*	*Actual*
Total Doz. finished 3,227-5/24	5.74	18,524.19	98.2	18,190.75
Cr. to Work in Process				
Total Doz. Firsts 2,095-4/24	5.74	12,026.28	98.2	11,809.81
Dr. to Finished Stock				
Cost of Imps.				6,380.94
Inventory Value of Imps.				4,863.45
Actual "Loss on Imps." (Dr. to Finished Stock)				1,517.49

Standard "Loss on Imps." 2,095-4/24 firsts X .648 stand. loss equals 1,357.67 stand. loss
(Dr. to Finished Stock for standard)

EXHIBIT 13

quality. On the work sheet shown in Exhibit 13, is illustrated the method of arriving at the values for the journal entry.

The standard value of irregulars is the figure used in the standard costs to determine our standard loss. The actual value of irregulars is determined from the current sales prices less deductions for packing costs and selling and administrative expenses. The standard cost of withdrawals is dozens finished times standard cost "paired." The actual value is this standard times the cost ratio developed in the process inventory account. There is nothing unusual about these values except the "Loss on Imps." item. The cost of throw-outs less the salvage value equals the actual "Loss on Imps." to be absorbed by the firsts. The standard "Loss on Imps." is the quantity of firsts times the standard loss per dozen as calculated on the standard cost summary sheet. There are three factors influencing any change in this item of "Loss on Imps.": (1) Quantity produced; (2) Cost variation of hosiery; (3) Change in selling price of throw-outs. It will be seen from the work sheet that these three factors are reflected in the actual "Loss on Imps."

In summarizing the finished lot tickets, the odds that cannot be matched or mated, are classed as "redyes." This means that all the odds from different lots are thrown together and redyed and refinished as a net lot. Therefore all odds or redyes are not transferred to finished stock but are left in work in process. When these redyes come through again, all labor applied to same is charged to the departmental expense. In setting the normal burden rate, allowance was made in the departments affected for this refinishing expense.

The journal entry for this transfer is as follows:

Factory Journal Entry
Work in Process to Finished Stock

	Dr.		*Cr.*	
	Actual	*Standard*	*Actual*	*Standard*
B-901F Mfg. Cost	$11,809.81	$12.026.28		
Loss on Imps.	1,517.49	1,357.67		
B-902F Mfg. Cost	8,925.25	9,025.75		
Loss on Imps.	825.60	946.70		
B-901 Process Inventory			$18,190.75	$18,524.19
B-902 Process Inventory			13,175.85	13,577.59
B-48X Imperfect Stock	8,288.45	8.480.50		
Z-7 Excess Standard Loss		264.88		

The effect of this entry on the finished goods account is shown in Exhibit 14, which also illustrates the other charges made to finished goods.

FACTORY LEDGER ACCOUNT

B-901F Finished Stock

	Mfg. Cost		*Loss on Imps.*		*Total*		
	Actual	*Standard*	*Actual*	*Standard*	*Actual*	*Standard*	*Ratio*
Balance					$6,785.80	$7,025.60	
Production	$11,809.81	$12,026.28	$1,517.49	$1,357.67	13,327.30	13,383.95	
Scrap in Production			75.20	0	75.20	0	
Packing Material.					1,265.75	1,295.60	
Packing Labor and Burden					621.25	585.75	
					$22,075.30	$22,290.90	99.2
Shipments or Sales					*15,599.60	*15,725.40	
Returns					*393.94	*397.00	

*Red—Deductions

EXHIBIT 14

Packing Costs

As the packing operations are applied to the hosiery in finished stock account all packing labor and burden and packing materials are charged to the finished stock inventories. The entry for labor and burden is as follows:

Factory Journal Entry
Packing Labor and Burden

	Dr.		*Cr.*	
	Actual	*Standard*	*Actual*	*Standard*
B-901F Finished Stock	621.25	585.75		
B-902F Finished Stock	322.25	310.75		
K-3 Mill Payrolls			625.10	
R-9 Dept. Expense			318.40	298.20
Z-2 Standard Control				598.30

Hosiery spoiled in operations after legging, must be taken out of inventories for the value of material, labor and burden. Instead of charging this to the department overhead we include this loss in the cost sheet under "Loss on Imps." An entry is made crediting process inventories and charging finished stock, adding this to the cost of the first quality, as shown in Exhibit 14. No standard loss is figured for this entry.

Returned Hosiery Expense

In dealing with the retail trade, there will always be a certain amount of merchandise returned for credit, some justly because of manufacturing defects, and some unjustly, in many cases after being worn. This merchandise was sent out as first quality and costed as such. But after re-inspecting, most of the returns are re-

classified as of lower quality. Through shop wear and through rough handling some are damaged and hosiery worn is thrown out as rags. This loss in value together with the cost of reinspecting and the cost of redyeing, refinishing and repacking same is charged to "Return Expenses" which we have allocated with the delivery expenses. We realize that some of this expense should be charged to manufacturing expenses. But we keep the total expense in one account so it is not buried in some other figures, giving more emphasis on the cost of such return policy. The entry on this expense is as follows, making a transfer to the general ledger.

Factory Journal Entry
Return Expense

	Dr.		Cr.	
	Actual	*Standard*	*Actual*	*Standard*
B-901 Process Invent.	$173.24	$176.40		
B-902 Process Invent.	62.10	70.41		
Z-1 General Ledger Trans.....	259.24			
Z-2 Standard Control		250.68		
R-4 Dept. Exp. Ind. Labor			$4.74	
R-8 Dept. Exp. Ind. Labor.....			2.66	
B-901 F Finished Stock			393.94	$397.00
B-902 F Finished Stock			76.34	83.04
B-903 F Finished Stock			16.90	17.45

General Journal Entry

L-22 Return Expense	259.24	
Z-1 Factory Ledger Trans.....		259.24

Cost of Sales

The actual cost of sales is determined by multiplying net sales in dozens by standard cost per dozen, times cost ratio (actual to standard). This is calculated on each style or product class making possible a profit and loss statement by product class.

Entry on the factory journal for cost of sales is as follows:

Factory Journal Entry
Cost of Sales

	Dr.		Cr.	
	Actual	*Standard*	*Actual*	*Standard*
J-5 Cost of Sales.....	$82,410.92			
Z-2 Standard Control		$84,524.87		
B-901F Finished Stock			$15,599.60	$15,725.40
B-902F Finished Stock			24,395.38	25,625.40
B-48X Imperfect Stock			8,214.86	8,425.50
B-42X Imperfect Stock			16,406.13	16,142.70
B-54X Imperfect Stock			1,575.10	1,610.10
B-1016F Finished Stock			2,375.25	2,460.25
B-1022F Finished Stock			3,756.05	3,905.20
B-1025F Finished Stock			7,524.40	8,220.22
B-1028F Finished Stock			2,564.15	2,410.10

Profit and Loss Summary

To take off the monthly profit and loss report, the general ledger is not closed or changed except that the book inventory, as appearing in the factory ledger after accounting for cost of sales, is placed on the ledger. This entry is again reversed on the general ledger the beginning of the subsequent month. The profit and loss statement appears as Exhibit 15.

PROFIT AND LOSS SUMMARY
October 31, 1934

			% to Net Sales
Gross Sales		$95,526.55	101.3
Returns		1,225.65	1.3
Net Sales		$94,300.90	100.0
Cost of Goods Sold		82,471.92	87.4
Normal Gross Profit		$11,889.98	12.6
Overabsorbed Mfg. Expense		4,159.87	4.4
Actual Gross Profit		$16,049.85	17.0
Less:			
Delivery Expense	$929.30		1.0
Selling Expenses	5,229.00		5.5
Gen. Admin. Exp.	4,610.20		4.9
		$10,768.50	11.4
Net Operating Profit		$5,281.35	5.6
Other Income			
Income	$657.60		
Charges	*475.80	181.80	.2
Net Income for Period		$5,463.15	5.8

All figures are hypothetical.
* Red—Deduction.

EXHIBIT 15

The sales, delivery expenses, selling expenses, administrative expenses, and non-operating income are taken from the general ledger accounts. The cost of sales figure is carried in the factory ledger. The over- or under-absorbed manufacturing expense figure is obtained from the Mill Statement, which is a detailed operating statement of the departments and includes the over- or under-absorbed balances appearing in the factory ledger in the departmental expense accounts.

The proof of the Profit and Loss statement will be found in the change in net worth on the balance sheet.

Profit and Loss by Product Classes

The profit and loss statement is broken down into profits by products. This is obtained through a detailed sales analysis with the extensions of the details by the actual costs. This is possible because the inventory costs are kept in actual costs by product class. To determine the commercial expenses applicable to the

PROFIT AND LOSS STATEMENT BY PRODUCT CLASSES
Month of

Sales Groups and Product Classes	Net Sales	Cost of Goods Sold	Normal Gross Profit		Commercial Expenses	Net Profit	
			Amount	%		Amount	%
Perfects							
3 thd. Ladies 48 gg #901	21301	15600	5701		2670	3031	
4 thd. " 42 gg #902	24205	24395	* 190		2170	* 2360	
2 thd. " 54 gg #1016	2972	2375	597		407	190	
4 thd. " 48 gg #1022	4740	3756	984		645	341	
5 thd. " 42 gg #1025	8872	7524	1348		1290	58	
8 thd. " 42 gg #1028	2820	2564	256		440	* 184	
Total	64910	56214	8696		7620	1076	
Imperfects							
gg Imperfects	18390	16406	1984		1928	56	
48 gg "	9205	8215	990		1002	* 12	
54 gg "	1795	1575	220		219	2	
Total	29390	26196	3194		3148	46	
Normal Grand Total	94300	82410	11890		10768	1122	
Less Unabsorbed Mfg. Expense— Hosiery Departments		* 2949	2949			2949	
Throwing Plant		* 1210	1210			1210	
Actual Grand Total	94300	78251	16049		10768	8281	

* = Red - Deductions or Losses

EXHIBIT 16

EXHIBIT 16

various product classes, we extend net shipments by the standard commercial expense per dozen times the ratio of actual to standard expenses. This is shown as Exhibit 16.

Balance Sheet

This is the only monthly report made up from the general ledger. As stated before, this is simplified by having the accounts classified in the order in which they appear on the balance sheet.

Mill Statement

This is a departmental profit or loss statement of manufacturing expenses. The statement is a breakdown of the over- or under-absorbed expenses showing the cause of loss or gain in each department as to spending and idleness. Operating ratios are also shown reflecting the efficiency of each unit. This information is obtained from the departmental expense accounts in the factory ledger. Exhibit 17 shows the Mill Statement.

Column A is the total actual expenses for the departments for the month. Column B is the budgeted amount of expenses. Column C is the actual expense absorbed into costs. This is actual time extended by the normal rate per hour. Column D is the difference between C and A. Column E, Controllable Expenses is the over- or under-expenditure for this portion of the departmental expenses. The question may be raised why there should be any profit or loss in Column F, Fixed Charges. A profit may arise when the budget was set for the year counting on certain assets to be written off early in the year. After they were written off, no more depreciation was charged to fixed charges, showing a corresponding gain for that month. A profit may also be realized in fixed charges (which also includes redistributed service departments) by reducing the force of service labor or reducing the expenses in the service departments. Column G, Capacity Unused, reflects the idleness or activity of the plant. The amounts are the difference between actual expense absorbed and the budgeted amount of expense. A profit will show black, while a loss will show in red.

The operating ratios are the ratios of spending or actual expenses to budget for Column H. Column I is the ratio of actual

MILL STATEMENT DATE October 1934

Department	Departmental Expenses			Variances from Budget, Classified				Operating Ratios				Cost Ratios	
	Actual Total A	Normal Budget B	Absorbed in Mfg. Cost C	Over or Underabsorbed Expenses D	Controllable Expenses E	Fixed Charges F	Capacity Unused G	Controllable Expenses H	Capacity Used I	Output (Volume) J	Output (Efficiency) K	Factory Expense L	Direct Labor M
HOSIERY DEPARTMENTS													
R31 F. F. Knitting 42 gg	7091.80	6922.30	8128.21	1406.41	• 425.25	325.75	1505.91	125	122	115	94	106	101
R32 P. P. Knitting 48 gg	6652.25	6771.87	7524.82	872.57	225.45	105.83	752.95	85	111	105	94	106	99
R33 Seaming and Looping	1093.25	1064.90	1555.11	441.86	• 25.60	• 2.75	470.21	108	144	144	100	100	100
R4 Boarding	742.41	691.56	852.21	109.80	• 45.75	• 5.10	160.65	115	123	130	105	95	103
R5 Finishing	552.25	553.31	582.47	30.22	5.26	• 4.20	29.16	98	105	114	109	92	102
R9 Packing	301.60	317.61	390.60	89.00	18.11	• 2.10	72.99	74	123	120	97	103	145
Total,	16365.56	16321.55	19313.42	2949.86	• 247.78	• 205.77	2991.87	94	118	114	96	104	102
T3 Throwing Plant	2667.19	2635.74	3877.20	1210.01	20.95	• 52.40	1241.46	99	147	137	93	107	104
Grand Total,	19030.75	18957.29	23190.62	4159.87	• 226.83	153.37	4233.33	95	122	116	95	105	103

Remarks: R 33 - Seaming and Looping has excess capacity. The reason for high performance (Col. I) is that work for other mills was seamed

• - led - Deductions or Losses

EXHIBIT 17

Form 122

Dept. R 8

HOSIERY
INVENTORY

JUN 30 1934

Style Number 901

Color PEBBLE

	8½	9	9½	10	10½	Quantity Dozen	Quantity Stockings
			✓			100	

Check (✓) for Quality				
Firsts	Imperfects	Seconds	Thirds	Fourths
✓				

Mark (X) to Indicate Last Operation

	Footing		Pairing	Menders	
Legging	Looping	Examining	Transfer	Hedyes	
Creasing	End Pulling	Dyeing	Fold and Banded		
Topping	Seaming	Boarding	Boxing		

Remarks:

VALUE	Actual		Standard	
ITEMS	Ratio	Amount	Price	Amount
Material			1.80	180 00
Misc. and Pack. Mat.			—	
Dyeing			.22	22 00
Direct Labor			2.33	233 00
Burden			1.40	140 00
Loss on Imps			.65	65 00
Total	95.0	608 00		640 00

Goods Counted by	Written by	Actual Priced by	Standard Priced by	Extended By	Checked by Extension
B	A. B	BB.	BB.	BB.	

EXHIBIT 18

expense absorbed to budgeted expense. Column H will readily show any variation in spending for the volume produced. Experience will show what ratios should be at expected volumes. This is also determined by separating the departmental budget into fixed and variable expenses and showing the expected spending at the various volumes. Column J, Output, is the ratio of standard expense absorbed to budgeted expense. Column K, Efficiency, is the relation of capacity used to output in volume. The cost ratios are the ratios of actual to standard.

Current Costs

To determine the current manufacturing cost of each product or style per dozen, we extend the standard cost by the ratio actual to standard. This is done for each element of cost. From the entry transferring raw materials and payrolls to work in process, we get the ratios for material, dyeing, labor and burden. The ratios for actual of "Loss on Imps," packing material, and packing labor and burden are calculated from entries to finished stock recording these items. These items appear in the process inventory account and the finished stock account.

The trend of costs is shown on trend reports showing the costs in ratios or in actual dollars and cents.

Physical Inventory

Our pricing of physical inventory is somewhat simplified because of the ratios actual/standard. The inventory is taken on cards as shown in Exhibit 18. These are summarized on total cards which are then priced at standard and extended for standard values. The cards for the various operations of each product class are summarized on a grand total card and the standard value extended by the cost ratio appearing on the inventory account which gives us the actual cost of the inventory. However, if the market value of the inventory is lower, adjustments must be made covering same.

The final check on the accuracy of the accounting system is the extent of the adjustments to the books at physical inventory time. For the last three years our adjustments due to records being off were 0.16% of the cost of sales. For the last year the net adjustment was 0.09% of the cost of sales, which we believe is fairly close for a process cost system.

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16th INTERNATIONAL COST CONFERENCE

JUNE
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TUESDAY AFTERNOON:
Experience with Uniform Accounting

WEDNESDAY:
Control Through Accounting and the Flexible Budget

THURSDAY:
Open Forum on Controversial Questions